

18301468
SAMI 8301468

1992
1991
1990

20101028 169

DO NOT DESTROY
30 DAYS LOAN
RETURN TO AFSA/SAMI
1777 NORTH KENT STREET, 7th FLOOR
ROSSLYN, VA 22209, (703) 588-6940

The Reserve Forces in the 1990's

Reserve Forces Policy Board
Office of the Secretary of Defense
Pentagon, Washington, D.C. 20301



Vol I - Executive Report

Vol II - Technology Demographics, etc.
Procurement, Acquisition, etc.

Volume 3

Equipment, Acquisition/Allocation Policies and the Guard/Reserve

22970



OFFICE OF THE SECRETARY OF DEFENSE

RESERVE FORCES POLICY BOARD

WASHINGTON, D.C. 20301

SAMI 8301468

LETTER OF TRANSMITTAL

"The Reserve Forces in the 1990's"

The 1990's Study Group was originally constituted by the 1990's Committee of the Reserve Forces Policy Board, Office of the Secretary of Defense in 1980 to attempt to develop insights into the probable makeup of the Guard/Reserve in the decade of the 1990's. That study effort addressed only two of the many factors which will heavily impact on Guard/Reserve makeup in that decade; namely, technology and demography.

The results of that study led the Board to the determination to study another influential factor, the weapons acquisition process. Thus, this summer's study effort entitled Equipment, Acquisition/Allocation Policies and the Guard/Reserve.

The study design was initiated with an examination of the major system acquisition cycle starting with the determination of mission need and continuing through the production and deployment phase. A combination of literature research and discussions with personnel in both OSD and the Services produced insights into the acquisition process as it affects the Active Forces now and the Guard/Reserve in the outyears. Finally, a case study examination of several diverse weapons systems was done to reinforce the findings and conclusions.

The study addresses many issues including the dilemma of huge equipment shortages, block obsolescence and incompatibilities of equipment in the Guard and Reserve with Active Force equipment, the escalating costs of new weapons systems, competitive practices, and the need for greater Guard/Reserve representation at the early stages of the acquisition process.

It was interesting to discover that clear and explicit guidance had been issued to the Service Secretaries by Secretary of Defense James R. Schlesinger, Jr. in 1975, but the full intent of that policy has never materialized. The Guard and Reserve has struggled through years of unfilled promises that the equipment picture would improve - almost always in the outyears of the Five Year Defense Plan. When that outyear arrived, the promise was almost always deferred to some later date. The resultant equipment shortages are starting to be recognized after years of neglect.

The study provides a series of findings, conclusions and recommendations which, if adopted, the Board believes will not only help the Guard and Reserve to attain higher levels of readiness, but will improve the weapons acquisition process in general.


Louis J. Conti
Chairman

The Reserve Forces in the 1990's

Volume 3

Equipment Acquisition/Allocation Policies
and the Guard/Reserve

This report represents the view of the members of the Reserve Forces Policy Board and does not necessarily reflect the official opinion of the Department of Defense or any other department or agency of the United States government.

November 1981

TABLE OF CONTENTS

| | Page |
|--|------|
| INTRODUCTION | 1 |
| DEFENSE POSTURE | 2 |
| THE ACQUISITION PROCESS | 5 |
| Weapons System Acquisition Process | 5 |
| Procurement Methods in the Department of Defense | 8 |
| ACQUISITION POLICY RAMIFICATIONS | 10 |
| Overview | 10 |
| Time | 10 |
| Complexity | 11 |
| Reliability | 12 |
| Availability | 14 |
| Maintainability | 14 |
| Cost | 14 |
| Readiness | 15 |
| CURRENT INITIATIVES. | 16 |
| Management of the DoD PPBS | 16 |
| Improving the Acquisition Process. | 16 |
| Decisions | 17 |
| Congressional Interest in G/R Equipment. | 18 |
| Evaluation | 19 |
| GUARD/RESERVE INTERFACE IN THE ACQUISITION PROCESS | 20 |
| Guard/Reserve Inclusion in the Formal Cycle | 20 |
| Theory vs. Practice | 21 |
| DoD Policy Guidance to the Military Departments. | 22 |
| ACQUISITION/ALLOCATION DYNAMICS. | 26 |
| Analysis of G/R Procurement Budget Appropriations. | 26 |
| Caution on Interpreting FYDP Procurement Data. | 28 |
| GUARD/RESERVE CURRENT EQUIPMENT STATUS | 33 |
| Personnel Authorization. | 38 |
| Current Equipment Shortages. | 39 |
| GUARD/RESERVE EQUIPMENT 1990's | 41 |

| | Page |
|--|------|
| FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS | 43 |
| Findings | 43 |
| Conclusions. | 44 |
| Recommendations. | 45 |
| Acquisition Policy | 45 |
| Allocation Policies. | 46 |
| LIST OF TABLES AND FIGURES | 47 |
| GLOSSARY OF ACRONYMS | 48 |

I. INTRODUCTION

Today the armed forces of the United States are not adequately equipped to meet foreign threats and to protect its citizens and their vital interests throughout the world. The inability of the Total Force to fulfill these responsibilities is caused primarily by inadequately equipped forces. The quality of equipment supplied and the shortage of the equipment are both real and pervasive problems.

This report briefly describes the current U.S. defense posture. It then outlines the weapons/equipment acquisition policy and process, their ramifications, and the current initiatives proposed to solve the equipment shortage problem with particular emphasis on the Guard/Reserve (G/R). The G/R relationship within the acquisition process, the current G/R equipment status, and the probable equipment status in the 1990's are discussed.

The findings in the last chapter are supported within this report and documented in the current literature cited. The conclusions proceed logically from the findings enumerated. They may be summarized as equipment shortages aggravated by incompatibilities within the G/R forces. These deficiencies will probably increase in the future if corrective actions are not taken now.

The recommendations offered are designed to increase the total equipment available to the Total Force through improved acquisition policies and to establish more responsive allocation policies within the Military Departments. These will enable the G/R forces to better fulfill their commitment as full partners within the Total Force.

These recommendations include multi-year procurement, unitary buys, dedicated purchases, Table of Equipment (T/E) reconciliations, interim purchases, and increased G/R representation in the acquisition cycle. Increased emphasis on more realistic forecasting of costs, competitive practices, Service Life Extension Programs (SLEPs), Product Improvement Programs (PIPs), alternative designs and spare parts are recommended.

The role of the G/R in the Total Force has increased continually since 1973. If the G/R is to fulfill its obligations in the future defense of the nation, it must be better equipped. Total Force figures include the G/R; however, total capability does not address downgrade due to equipment shortfalls.

II. DEFENSE POSTURE

In a constantly changing world, it is unreasonable to expect the military posture of any nation to remain static. At the close of World War II, the United States quickly dismantled the greatest military power the world had known. Following the military revitalization of the U.S. during the Korean Conflict, the U.S. did not as completely disassemble its military force.

TABLE II-1

DEPARTMENT OF DEFENSE BUDGET FINANCIAL SUMMARY

| | FY 50 | FY 53 | FY 64 | FY 68 | FY 75 | FY 80 | FY 81 | FY 82 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| DEPARTMENT OF DEFENSE AS PERCENTAGE: | | | | | | | | |
| FEDERAL BUDGET (OUTLAYS) | 27.4% | 57.0% | 41.7% | 43.2% | 26.0% | 22.9% | 23.8% | 24.3% |
| GROSS NATIONAL PRODUCT | 4.4% | 12.1% | 8.0% | 9.3% | 5.8% | 5.2% | 5.5% | 5.6% |
| LABOR FORCE | 4.6% | 14.9% | 8.2% | 10.0% | 5.3% | 4.8% | 5.0% | 5.1% |
| NET PUBLIC SPENDING | 18.5% | 42.9% | 27.8% | 29.4% | 16.7% | 15.8% | 16.5% | 16.9% |

Source: Brown, Harold. *Department of Defense Annual Report, FY 1982*. January 19, 1981. p. C-9.

During the Vietnam War the great potential of the U.S. military was never fully used, and, beginning even before the end of the war, the military might of the U.S. was again allowed to decline. Since the Korean War, the percentage of the gross national product (GNP) spent on defense had steadily declined from 12.1% in 1953 to 5.6% in President Carter's proposed FY82 Budget. (See Table II-1). The current administration proposes to increase this commitment to about 7% within the next few years.

Regardless of expenditures, the U.S. still possesses an extremely formidable military force that in terms of destructive ability is undoubtedly the greatest in the world. Serious deficiencies exist however, particularly in the areas of conventional forces, when those forces are compared to the possible war fighting threat contingencies.

Although the strategic and theater nuclear forces of the U.S. are aging and in need of modernization, especially the air and land legs of the Triad, the most probable threat appears to be in the area of non-nuclear, conventional forces intimidation/intervention/invasion of areas in the world which the U.S. considers necessary to her vital interests. These threats may be either internal or external and could be from any side of the political spectrum, including religious, marxist, rightist, leftist, international terrorists, etc. (e.g.: Poland, Afghanistan, Iran, Lebanon, Cambodia).

A paradox of recent years, which will increase in the foreseeable future, is that as industrial nations have become more sophisticated, they have become more vulnerable to direct or indirect attack on their economies. National security threats from direct military action against one's Nation are easy to recognize and national resources are quickly mobilized to counter such threats. But, hostile control of vital resources could subjugate a nation as surely as direct military attack, and while relatively easy to identify, it is eminently more difficult to mobilize national will to defend against. The indirect threat of one nation dictating policy to another based upon control of scarce natural resources, has become a haunting spectre to all industrial nations.

U.S. military posture has for years been a patchwork mismatch between strategy and available forces. With expanded requirements for insuring stability in areas such as Southwest Asia, U.S. forces are now stretched to a point where our ability to maintain stability in those areas of the world vital to our interest, is seriously questioned.

Modernization of equipment and force structure re-configuration must result in reduced response times if the U.S. expects to be able to exert its influence in unstable areas of the world in future years.

In his annual Military Posture Statement to Congress for FY82, Chairman of the Joint Chiefs of Staff (JCS), General David C. Jones, lists some specific options for the broadening of our strategic focus beyond nuclear deterrence and a handful of contingencies:

1. Increase stockpiles of conventional hardware.
2. Improve sealift and airlift.

3. Increase maritime capability.
4. Improve access to forward facilities.
5. Package and train highly mobile, combat forces.
6. Improve cooperation with allies.
7. Better integrate U.S. policies.
8. Improve flexibility of timely aid to allies,
to include economic and military hardware.
9. Improve industrial preparedness and ability to
mobilize the nation's resources.

In order to meet these obligations, since the implementation of the Total Force Policy in 1973, it has been directed that the G/R will play an increasing role in the defense of the nation.

The Air Force and the Marine Corps appear to be moving faster in this direction than the other Services. Both the Air Guard and Air Force Reserve and the Fourth Marine Division are essentially equivalent in readiness and combat capability to their Active Force counterparts. Nevertheless, the ability of most G/R units to fulfill their role within the Total Force Policy is hampered by serious equipment shortages and deficiencies.

III. THE ACQUISITION PROCESS

A. Weapons System Acquisition Process

The weapons system acquisition process is complex and detailed. It is closely tied to the Planning, Programming, Budgeting System (PPBS). Military planning, initiated largely by the Services, and yearly budgeting accomplished in the Office of the Secretary of Defense (OSD) are carefully linked to establish a budget covering a five year period, the Five Year Defense Program (FYDP).

At the OSD level, personnel and resources are aligned to support an integrated approach to management of research, development, and acquisition. The Under Secretary of Defense for Research and Engineering heads the acquisition team responsible for all major program activities including research, engineering, production, industrial relations, standardization, and contracting. The Defense System Acquisition Review Council (DSARC), composed of the principal assistants to the Secretary of Defense, is responsible to advise the Secretary of Defense in milestone decisions to proceed from one major stage of the acquisition process to the next stage. The Council insures consideration of all areas of program acquisition. Needs, technical risks, cost schedules, production capabilities, logistics support planning and manpower, and training requirements are all routinely reviewed as elements in the decision process. The Council's recommendation at each major decision point is provided to the Secretary who makes the final decision, published as a Secretary of Defense Decision Memorandum (SDDM).

Consistent with the Office of Management and Budget (OMB) Circular A-109, heavy emphasis is being placed on evaluating mission needs and developing systems within a mission oriented context rather than from hardware oriented terms. OMB Circular A-109 is implemented by several DoD Directives and Instructions. DoDD 5000.1 states that it and DoDI 5000.2 take precedence over all other acquisition policies and procedures, except statutory requirements. DoDD 5000.1 defines the basic policy and responsibilities for the acquisition process. DoDI 5000.2, Major System Acquisition Procedures, provides the step by step milestones that must be accomplished throughout a major acquisition. It sets forth organizational and procedural elements for the DSARC process and stipulates program documentation requirements including the Mission Element Need Statement (MENS), Decision Coordinating Paper (DCP), and the Integrated Program Summary (IPS).*

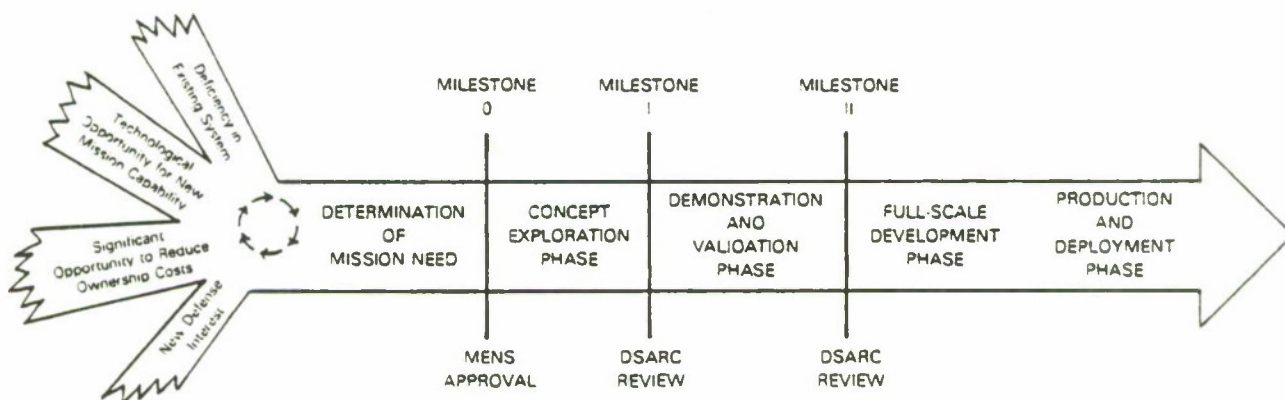
Closely associated with the two basic implementing documents is DoDI 7045.7 -- the Planning, Programming, and Budgeting System (PPBS).

- * Modification of DoD Directives currently in final draft stage will redefine some of the descriptions of steps in the Weapons Acquisition Process.

The core of the acquisition process is the DSARC whose function is to review program details and provide recommendations to the Secretary of Defense at each of the major milestones of the acquisition process.

FIGURE III-1

MAJOR SYSTEM ACQUISITION CYCLE



A typical acquisition goes through four phases from conception to deployment. These phases are: (1) program initiation and concept exploration; (2) demonstration and validation; (3) full scale engineering and development; and, (4) production and deployment.

The process begins when the definition of the mission need is established at Milestone 0 in the DSARC process. The Service Secretary submits a statement of the mission need to the Secretary of Defense which is documented in the Mission Element Need Statement (MENS). He requests the Secretary's approval to proceed in identifying and exploring alternative solutions to the mission need. The program officially begins with a decision by the Secretary of Defense at Milestone 0 that a mission need exists. Approval does not commit DoD to a new major system development; changes in force level mix, doctrine or tactics may be adequate to meet identified needs. The upgrading of existing equipment may be a solution. Foreign equipment may do the job. Generally, a new development is the least attractive alternative. Approval of the MENS does not commit funds. At the Zero Milestone there is not a lot of money involved.

After Milestone O approval, the responsible Service begins exploring alternative system concepts so that the selected few that appear most promising can be identified and further evaluated. The Service Secretary requests approval of the Secretary of Defense at Milestone I (DSARC) to proceed with the demonstration and validation effort. A favorable reaffirmation of mission needs by the Secretary and his approval of one or more selected alternatives for competitive demonstration and validation begins the second or Demonstration and Validation Phase.

During the Demonstration and Validation Phase the MENS is reaffirmed once the threat is updated. It is necessary that the system selected satisfies the mission needs, is cost effective, is acceptable within stated constraints, and that the demonstration and validation results support the system recommended. Cost performance and schedule estimates are thoroughly reviewed, well defined, and consistent with the risks involved. Demonstration and validation testing is completed with results supporting the recommendations. Requirements are estimated for long lead procurement items and for initial limited production to support operational tests and evaluation for verification of production engineering, and for the establishment of the production base. When the demonstration and validation activity has been completed, the Service Secretary selects the preferred system for full scale development and requests, at Milestone II, DSARC review to obtain approval of the Secretary of Defense for the selection to proceed to the next phase. Another favorable reaffirmation of the mission needs and the preferred system begins the next phase: Full Scale Development.

During the Full Scale Development Phase, program development proceeds if initial operational tests and evaluation support a decision to proceed. Effective trade-offs are made to balance cost, schedule and performance. Hopefully, the system is cost effective, affordable and remains the best alternative. Production quantity requirements are validated. Planning for deployment continues, including manpower and training, logistics readiness, and operational consultations. A production readiness review is completed to show that the contractor is capable of manufacturing the system as assigned in the quantities planned.

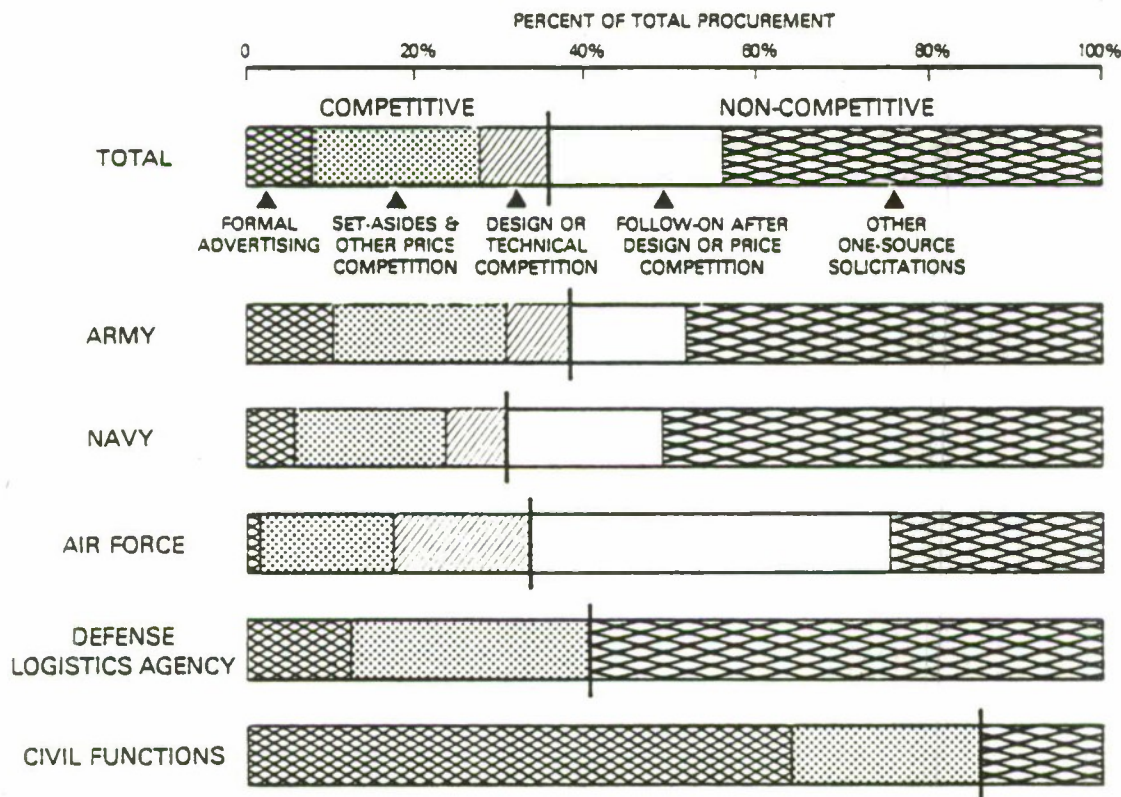
Upon completion of the Engineering Development, including the initial decision leading to production and deployment decisions, the Service Secretary reviews the program. A favorable decision by the Service Secretary that the system is ready for production and approval of the system and its development by the services to the using units begins the Production and Deployment Phase. During this phase, the system is produced in quantities for operational use. In addition to the system itself, training equipment, spares, facilities and support equipment must be produced. More operational tests and evaluations are performed on the product. As program production continues, the Service Secretary decides when the system is ready to be deployed to the using units and will so advise the Secretary of Defense. With the fielding of the equipment, the acquisition process is complete.

B. Procurement Methods in the Department of Defense

Although the present statutes indicate formal advertising as the preferred method of procurement and that negotiation may be used as an "exception", negotiated procurement still accounts for the greater majority of dollars spent by DoD and many civil agencies. This heavy reliance on negotiations by government agencies may well reflect the unsuitability of rigid formal advertising procedures for many programs which involve large agencies.

FIGURE III-2

COMPETITION IN PROCUREMENT¹ FISCAL YEAR 1980



* Dollar Value

1. Source: Office of the Secretary of Defense, Directorate for Information Operation and Reports (DIOR), *Prime Contract Awards*, Fiscal 1980, semi-annual, (Washington, D.C., Pentagon, February 1981), Chart IV, P. 59.

With respect to competition in procurement for DoD in Fiscal 1979, 39% was competitive procurement with 8.3% formally advertised, 21.4% set asides and other price competition, and 9.4% design or technical competition. Non-competitive procurement represented 61.0%, with 18.4% follow-on after price or design competition, and 42.6% other than one source solicitations.2/

For DoD procurement for Fiscal 1980, 35.7% was competitive procurement with 7.9% formally advertised, 19.7% set-asides and other price competition, and 8.1% design or technical competition. Non-competitive procurement represented 64.3%, with 20.7% follow-on after price or design competition, and 43.6% other than one source solicitations.3/

2/ Ibid., Table 9, p.61.

3/ Ibid.

IV. ACQUISITION POLICY RAMIFICATIONS

A. Overview

The ramifications of acquisition policies may be summarized by saying that, because of shortages in quantities of equipment and incompatibility of types of equipment, the G/R is not able to completely fulfill its mission. Today, G/R forces are better manned, equipped, trained, supplied, and managed than ever before. Nevertheless, as part of the Total Force, they fall far short of meeting the potential contribution to national defense that could be made if properly equipped. The G/R must be equipped with compatible items if they are to operate side-by-side with Active units in combat. G/R personnel must be trained and experienced on the equipment they are expected to operate, maintain, and repair if they are to be effectively integrated into Active units, either collectively or individually upon mobilization. The G/R must be equipped and trained with the weapons with which they will fight. Mobilization time can be reduced greatly, provided equipment compatibility can be assured.

B. Time

A review of the Historical DoD Five Year Defense Program (FYDP) FY62-FY79, May 16, 1980 update, indicates a problem that has existed not only in the military for years but in many aspects of our society, i.e., "fix it tomorrow". Department of Defense budgets for many years have "corrected" almost all deficiencies in the "outyears", which then continually slip down the line with each succeeding budget year. The reality of the "outyears" of each budget never comes. When FY79 was the fifth year of the FYDP Procurement Annex, 841 M60 series tanks were projected to be purchased. After FY79 had become a reality, 449 tanks were actually purchased. When FY80 was the far "outyear" 377 tanks were scheduled, but when 1980 arrived, only 89 tanks were procured.

The example above clearly, indicates that primarily because of budgeting constraints, but often for other reasons (changed technology, varying threats, different political philosophies), the items designated as essential were not purchased. If the "outyear" purchases had been part of a firm multi-year contract, an increased number might have been purchased.

However, all projections into the outyears have not fluctuated so dramatically. For example, the Marine Corps procurement of the LVT 7 amphibious assault vehicle during the late 60's and early 70's changed very little in numbers. This contract, however, was a multi-year, fixed price incentive contract.

Not only does the quantity required appear to change significantly over time, but the acquisition cycle total time has increased greatly over the past four decades. The typical life cycle period for a major weapon system has been estimated by

various writers as somewhere between 12-15 years. There are a number of rational explanations for this phenomenon. Nevertheless, the alarming aspect is that the time required for the cycle apparently continues to increase with one estimate of about three months increase every five years.

One must not be misled, however, by the previous paragraph. It is evident that there is a great deal of difference between a Trident submarine and an M-198 Howitzer or a LAV (Lightweight Armored Vehicle). The Army/Marine Corps anticipates that through basically an "off-the-shelf" purchase with multiyear contracts and competitive bids that the LAV can meet the projected early 1984 initial operating capacity (IOC). This would be essentially a four year procurement cycle. Because of its size and complexity it is doubtful that this could be realized in a Trident submarine, even though history has some examples which might lead one to a different conclusion. Complex ships, aircraft carriers and battleships, during World War II were built in eighteen months to three years when similar ships immediately before the war had required five to seven years.

Current initiatives proposed by the Deputy Secretary of Defense should considerably shorten the time required for the acquisition process. Conversely, organizational inertia may well reduce the effect of new changes. As former Chief of Naval Operations Zumwalt discusses in his book, On Watch, there is a great difference between unilateral initiative for change in policy direction instituted by the leader of a large bureaucratic organization and the actual results that usually occur in a normal peacetime environment. Large structural organizations, especially those without good direct measures of success (profit and loss in the private sector, success in wartime for the military) tend to possess innate inertia against rapid change in any direction.

The initiatives proposed by Secretary Carlucci may have remarkable influence in that the necessity of shortening the acquisition cycle is widely recognized and they represent changes proposed at a propitious time for their implementation.

The total time involved in the acquisition cycle must be reduced if the Total Force is to be best fitted to counter the constantly changing global threat.

C. Complexity

Complexity cannot be addressed as an isolated feature.

Complexity may be compared to increasing numbers of items, switches for example, since computers are essentially collections of switches, each bit being a single switch, on or off, yes or no, zero or one. If these items are connected in parallel, failure of one will not impinge upon the others and complexity could be considered individually. However, any switches connected in series will necessarily immediately be affected by the failure of any other switch in that series. Even in a simple single-shot weapon,

the ability of the weapons to fire decreases, as the series train of events increases (trigger to sear to hammer to firing pin). As the weapon becomes more complex, even though individual item reliability may increase, the overall reliability of the system may be reduced. At the very least, the added numbers of items often results in increased costs.

D. Reliability

Reliability is a synonym for dependability or the ability to properly perform a designated task.

By the beginning of World War II, when the mechanical wonders of weaponry had replaced manpower in many instances, most people accepted the concept that increased complexity of a weapon increased reliability (it could and would do a better job). For example, the M-1 GARAND rifle was a more effective and capable individual weapon than its predecessor, the 1903 Springfield.

There appears today to be an overestimate by many of a weapon's reliability as the weapon becomes more complicated. One must be careful not to confuse capability with reliability. For example, if one considers reliability as being able to perform the task it is designed to perform, when you desire it to be performed, then the reliability of the Space Shuttle, based solely upon its first two attempted launches, was only 50%. The example may be ludicrous, but the point is valid.

The dilemma of high mix versus low mix and quantity versus quality is part of the same argument. Norman R. Augustine, with tongue in cheek, proposes his law which deals with the relationship between reliability of complex hardware and its cost (increased complexity equals increased costs) by stating that "if you are willing to spend enough money on an item of electronics, you can virtually guarantee that it can be made not to work". Cost, therefore, does not necessarily insure reliability.

Figure IV-1 is from Augustine's paper, "Augustine's Laws and Solutions 3" from Vol.1, No.3 of Military Sciences and Technology. The data does not include all airborne electronic equipment in the inventory today and hence should not be taken as positive proof that increased cost reduces reliability.

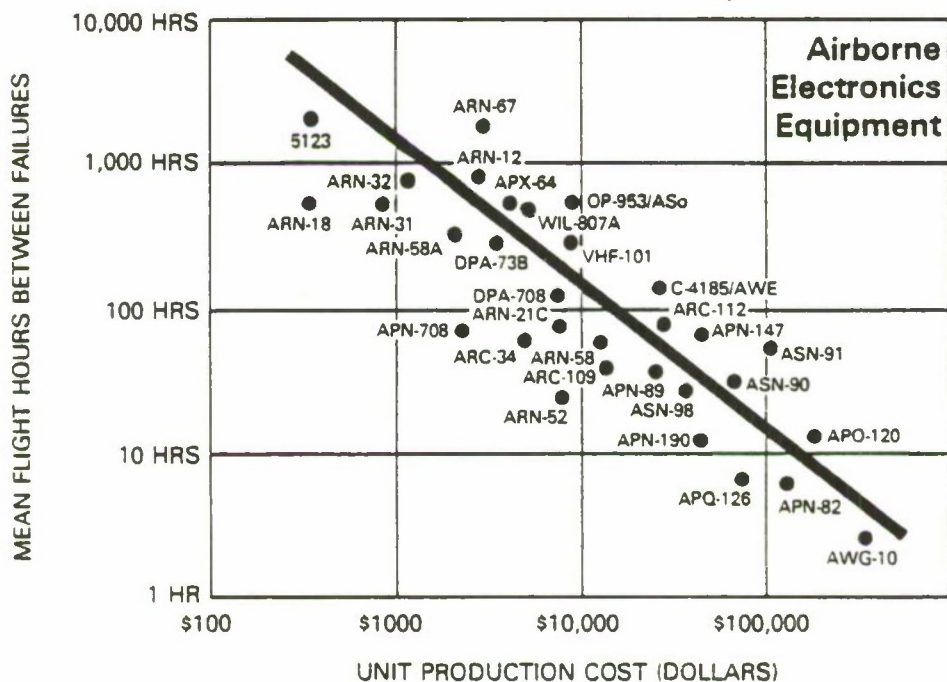
It does, however, lead one inescapably to the reverse conclusion that increased cost does not necessarily result in increased reliability. The data shown here demonstrates that as unit production costs increase, reliability, as measured by flight hours between failure, decreases.

Part of the problem is one of semantics, hinging on the word "reliable" and the concept of measuring it.

Current practice within U.S. forces is to measure mean time between failure even if system failure requires depot maintenance. In other words, the longer the time span between failures, the more reliable the equipment. The Soviet forces consider a system reliable if it can be repaired quickly by the operator even with very short time spans between failures.

FIGURE IV-1

IMPACT OF INCREASING UNIT COST ON FIELD RELIABILITY



Augustine, Norman R., "Augustine's Laws & Solutions 3"
Military Science and Technology, Vol 1, No 3, Jul 81, pg 21.

Augustine proposes greatly increased reliability testing conducted early in the development phase with a conscious test-break-fix-test-break-fix-test procedure. He maintains that the classical "Reliability Demonstration" usually occurs much too late in the program.

E. Availability

Systems and subsystems that are unable to perform for any reason may be considered unavailable, whether the nonavailability results from non-existence of the system or from inability to perform because of inoperability. Currently, the Navy inventory contains amphibious shipping capable of lifting approximately 1.15 Marine Amphibious Forces (MAF). Because of shipping dispersion throughout the world a MAF could not be immediately and completely sealifted, if a contingency arose today. If all amphibious shipping were currently on the same coast as the scheduled deployment, a complete MAF still could not be lifted because at any given time about 15-20% of the amphibious fleet is undergoing scheduled overhaul repairs. Another small percentage will have unanticipated failures which prohibit them from steaming.

Present acquisition policy has resulted in insufficient quantities which may be unavoidable because of resources, either real or perceived, denied the military by Congress. However, historically within the confines of limited resources, insufficient spares have been purchased, both initially and for replenishment.

F. Maintainability

Whether or not the system can be maintained is also a function of the availability of spare parts. Equally important in maintainability are the factors of maintenance facilities, equipment, personnel and their state of training and experience.

The exodus in recent years of highly trained, experienced technical personnel in the middle ranks, both enlisted and officers, has been addressed many times. Although the rate has slowed, this problem will remain in the foreseeable future. While not directly related to acquisition policies, many skills that rapidly degrade and are being lost from the active military could be retained and maintained in the Total Force if first-line equipment were available in the G/R forces.

Disregarding this phenomenon, as the complexity of the weapons system has increased, the capability of unit level maintenance has decreased. Not only has the maintenance required of the system itself increased, but the maintenance equipment, especially in the electronics area with automatic test equipment (ATE) and the myriad of problems associated with it has also multiplied. (See the Reserve Forces Policy Board Report, The Reserve Forces in the 1990's. Vol. 1, December 1980.)

G. Cost

A quick glance at the defense budget is all that is required to see the dramatic upward spiral of the cost of major defense systems, far beyond the inflation rates of the past twenty years. Much of the increase above the rate of inflation must necessarily be directly attributable to either complexity of the system or to the acquisition policies themselves.

Without attempting to find the root cause, the acquisition policies, if continued in the present trend, can only result in a situation where the systems required for the national defense are so expensive that they will be perceived as unaffordable. One M-60 tank that cost \$438,000 in 1975 cost \$1,055,000 in 1980. It is interesting to note that inflation costs alone, compounded at 10% a year would have increased the cost to \$706,659. (FYDP Procurement Annex, President's Budget, FY77-FY82.)

H. Readiness

Reliability, complexity and cost are important facets of the defense posture of the nation. The real test however, is the readiness and ability of the Total Force to properly defend the United States and its vital interests throughout the world both today and in the future.

The ramifications of present acquisition policies are such that the Total Force is better equipped and manned than ever before from the viewpoint of destructive firepower. Nevertheless, the Total Force is inadequately prepared to meet many probable contingencies that might arise on relatively short notice in many parts of the world.

Present policies have resulted in insufficient quantities of weapons/equipment in many cases, aged and obsolete systems in other cases, and incompatible equipment in many others. Most of the deficiencies are more extensive in the G/R than in the Active Forces. For example, signal/communications equipment in many G/R units is incompatible with that in the Active Force. Secure communication nets do not exist in some units. Reserve bulk fuel companies have existed for over two years that have no bulk fuel storage bladders, pumping equipment, pipe or hose.

V. CURRENT INITIATIVES

During the past two decades, much has been written about the DoD Planning, Programming, and Budgeting System (PPBS) and the Acquisition Process or Cycle. Most authors basically agree on the goals and the methods of improving both systems.

Failure to implement proposed changes appears to be the major problem, rather than failure to identify the problem. Memoranda from the Deputy Secretary of Defense on March 27, 1981, discusses the Management of the PPBS; and on April 30, 1981, and July 27, 1981, discusses Improving the Acquisition Process.

These memoranda are direct, concise and unambiguous. They should greatly facilitate the acquisition process for the Total Force when implemented.

A. Management of the DoD Planning, Programming and Budgeting System

Management principles directed by the PPBS memorandum include decentralization and accountability, participative management, economies and efficiencies. Specific directions were instituted for reducing the Program Objective Memorandum (POM) by at least 50%, changing the role and membership of the Defense Resources Board (DRB), eliminating the negative effects of the Zero Based Budget (ZBB) and reducing data retained and provided together with better use of that data.

B. Improving the Acquisition Process

In the April 30, 1981 Memorandum directed to the Military Departments, Under Secretaries and Assistants, the Deputy Secretary of Defense reemphasized the following acquisition management principles/objectives:

1. Improve long range planning to enhance acquisition program stability.
2. Delegate responsibility, authority, and accountability for programs, particularly to the Service program manager.
3. Emphasize low risk evolutionary alternatives to frontier technology.
4. Achieve economic rates of production.
5. Realistically cost, budget, and fully fund procurement, logistics, and manpower in the FYDP and the Extended Planning Annex.
6. Consider readiness and sustainability from outset.

7. Strengthen the industrial base.

A memorandum of July 27, 1981 amending the April 30, 1981 memorandum, specifically addressed the need to increase competition in the acquisition process.

C. Decisions

Major categories are addressed within the current initiatives designed to reduce cost overruns and to deploy adequate quantities of required systems in the shortest possible time;

1. Reduce Acquisition Cost
 - a. Fully fund R&D and procurement to ensure efficient cost and supportability schedules.
 - b. Minimize program changes.
 - c. Implement multi-year funding.
 - d. Reduce DoD regulations and directives.
 - e. Increase economy-of-scale lot buying.
 - f. Seek relief from costly legislative requirements.
 - g. Increase defense industry capability.
 - h. Insure economic production rates to reduce unit costs and decrease acquisition time.
 - i. Budget to most realistic cost.
2. Shorten Acquisition Time
 - a. Expand preplanned product improvement.
 - b. "Front end" fund for test hardware.
3. Improve Weapons Support and Readiness
 - a. Provide incentives to contractors for reliability.
 - b. Establish readiness objectives early in development.
4. Improve the DSARC Process

D. Congressional Interest in G/R Equipment

A review of the historical files in the Office of the Deputy Assistant Secretary of Defense (Reserve Affairs) reveals as early as 1971, Congressional inquiries regarding equipping G/R forces. Specifically, Congress requested DoD to supply data on the status of equipment and how much money would be needed to equip the G/R to fulfill their wartime missions.

During the summer of 1981, Congress again asked DoD to report on the status of equipment in the G/R. Because of the services apparent lack of progress in properly equipping the G/R, Congress has now asked DoD for their reaction to a Congressionally mandated separate funding for G/R forces.

The Department of Defense position on separate accounts for the G/R has been negative. DoD has indicated to Congress that separate accounts and separate appropriations for the G/R would greatly increase the administrative load on the Department. The Department of Defense has assured Congress that greater emphasis will be placed on solving the G/R equipment problem. Equipment will be distributed to the G/R utilizing the current system which allocates equipment based upon mission priorities regardless of component, Active or G/R.

The mood of Congress appears to be one of growing impatience with the continuous and inadequate equipping of the G/R Forces. Congress has, in recent years, made specific appropriations for G/R equipment. Congress has also required DoD to provide an annual accounting of equipment provided the G/R forces.

Congress authorized in FY78 and FY79, \$89 million for the procurement of major items of Communications/Electronic Equipment, for the Army G/R. Subsequent to the Congressional authorization procurement costs for the designated items were reduced to approximately \$70.2 million and the difference reprogrammed by the Army for Active Component requirements. (NGB Information Paper, July 21, 1981.)

In FY81, \$50 million was provided by Congress for Army G/R equipment. The FY82 Budget requests an additional \$176 million of Army G/R. (DAMA Information Paper, May 29, 1981.)

E. Evaluation

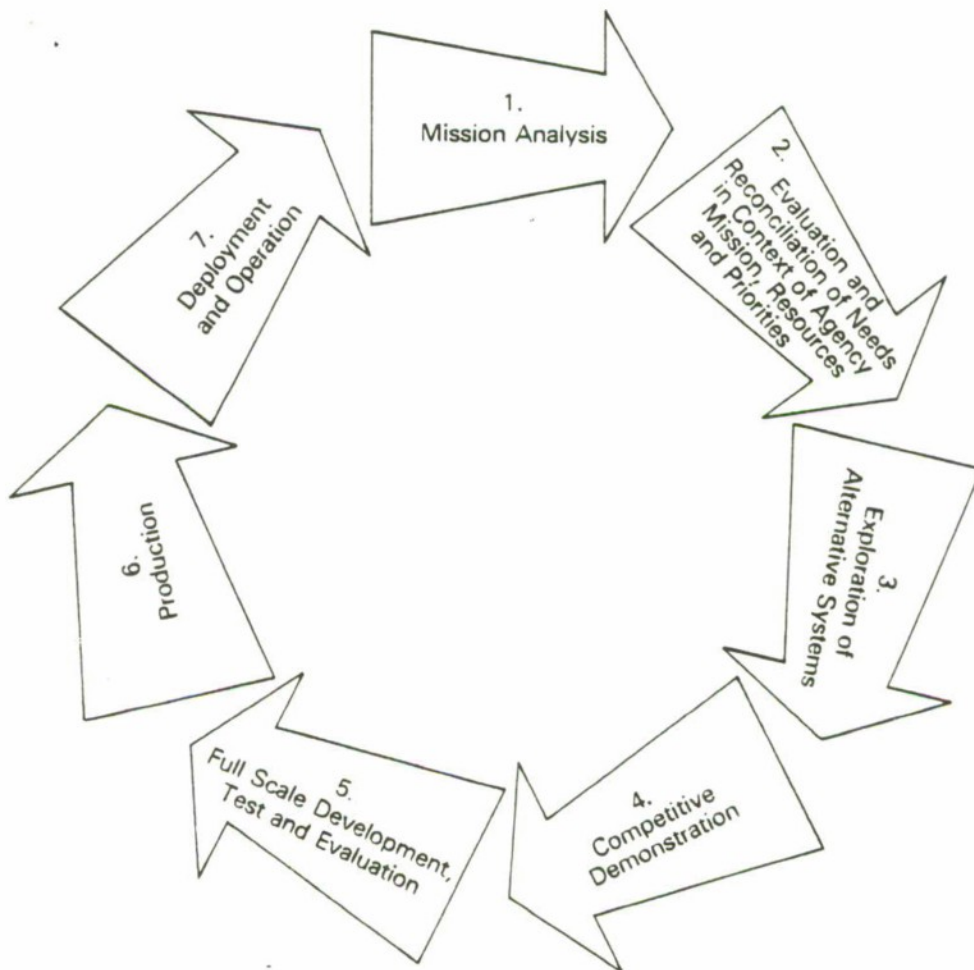
If fully implemented, the current initiatives proposed will certainly ameliorate some of the current problems and difficulties that exist today within the acquisition process of the Total Force. Any improvement of the process that affects the Total Force affects the G/R. But, there are some equipment associated problems in the G/R that may not be improved directly by these initiatives; specifically incompatibility of equipment, equipment shortages, and old and/or obsolete equipment that cannot be properly maintained because of insufficient spares.

VI. GUARD/RESERVE INTERFACE IN THE ACQUISITION PROCESS

A. Guard Reserve Inclusion in the Formal Cycle

The Total Force Major Systems Acquisition Cycle does not differ in principle from the process described in Section III. The seven major functional areas are cyclic and must be addressed regardless of whether Guard/Reserve (G/R) equipment is included in a specific acquisition program:

FIGURE VI-1



In the Total Force Equipment Acquisition System, the vital G/R issues which should be addressed are:

1. In the initial steps of "Mission Analysis" and "Evaluation and Reconciliation of Needs in the Context of Agency Mission, Resources and Priorities" (Steps 1 and 2), the applicability of G/R mission potential and capabilities must be carefully and scientifically appraised.

2. If G/R involvement with the attendant equipment acquisition is appropriate, the key steps/decisions points at which the G/R interface in the acquisition cycle must be determined.

Because the initial processes of "Mission Analysis" as well as "Evaluation and Reconciliation" represent the source from which the ensuing five activities flow, the failure to carefully diagnose G/R mission capability at this critical juncture virtually insures that a Total Force approach can not be operative in the later stages. A closer examination of the acquisition process from a G/R perspective confirms this view. In the area of "Mission Analysis", OMB Circular A-109 requires "a continuing analysis of current and forecasted mission capabilities, technical opportunities, overall priorities and resources involved". In the case of DoD, when the analysis identifies inadequate military service capabilities or an opportunity to enhance capabilities stemming from a recent technologically feasible opportunity, it must be set forth in the Mission Element Need Statement (MENS). The MENS typically includes items such as mission purpose, capabilities, operating and time constraints, the value of meeting the need and, most important from the G/R standpoint, the agency components involved. While the OMB Circular directs that the MENS not be expressed in equipment terms, this initial foundation document must include a pragmatic G/R analysis if Total Force acquisition is to be a reality.

In the formal process, once the G/R Integrated Mission Analysis and MENS phases are complete, the role of the Reserve Components should be miniscule in the following four acquisition cycle actions, i.e., "Exploration of Alternative Systems", "Competitive Demonstration", "Full Scale Development Test and Evaluation", and "Production" (Steps 3 through 6).

Conversely, the Deployment and Operation stage (Step 7) represents a benchmark which speaks to the efficacy of the entire Total Force Approach to DoD Acquisition Policy.

B. Theory vs. Practice

In macrotheory, the DoD Major Systems Acquisition Cycle, as currently designed, provides the mechanism for inclusion of G/R equipment requirements. However, practice does not appear to track theory in many instances.

At OSD level, in the functional area directly responsible for acquisition, the Office of the Deputy Under Secretary of Defense, Research and Engineering (Acquisition Policy), no discernible policy exists which mandates inclusion of G/R equipment programs in the formal acquisition process.

DoD Memorandum, subject: "Management of the DoD Planning, Programming and Budgeting System", March 27, 1981, defines the current role and membership of the Defense Resources Board (DRB). The DRB was established in April, 1979, to help improve the efficiency of the PPBS, primarily by supervising the OSD review of Service POM's and the Budget submission. As currently established and chaired by the Deputy Secretary of Defense, the primary role is "to help the Secretary of Defense manage the entire revised planning, programming, and budgeting process".

The DRB member who serves as the single focus for G/R issues is the Assistant Secretary of Defense for Manpower, Reserve Affairs and Logistics (ASD(MRA&L)). No OSD member of the DRB holds an appointment below the level of Assistant Secretary.

As set forth in Section III of this report, the other major OSD management team dealing with the integrated acquisition of weapons is the Defense Systems Acquisition Review Council (DSARC). In the same context as the DRB, the ASD(MRA&L) serves as the principal sponsor for G/R interface and no member holding a rank below Assistant Secretary is an appointee.

The ASD(MRA&L) has direct responsibility for well over half of the defense budget, an awesome responsibility and span of control. Understandably in this broad array, there is an immense and overriding concern directed toward "people" issues, including pay, retention and recruiting, as well as logistics issues such as O&M. These represent touchstones of the key element which in turn drives all other ASD(MRA&L) functions - readiness.

Moreover, the historical approach to G/R equipment acquisition and allocation has resulted in equipment shortfalls in operational and support elements as documented in Section VIII of this report. The shortfalls, in turn, degrade G/R readiness. Thus, the potential for a serious dichotomy appears to exist between the expansive responsibilities of the ASD(MRA&L) across a broad continuum and the necessity for a singular focus on G/R readiness shortfalls, especially equipment degradation and shortages.

The Board believes that this major defense readiness deficiency, if near term resolution is to be achieved, must continue to be singularly and consistently addressed personally by the ASD(MRA&L) at the highest OSD levels.

C. DoD Policy Guidance to the Military Departments

While no formal DoD policy guidance exists to insure that G/R equipment needs are encompassed in the Major Systems Acquisition Cycle, clear and explicit guidance has been issued to the Secretaries of the Military Departments relative to the procurement and distribution of new and/or combat serviceable equipment for Selected Reserve Forces under their jurisdiction. DoD Directive 1225.6, April 18, 1970, and subsequent amendments direct that the Military Secretaries:

1. *Expeditionously procure, issue and maintain equipment of combat standard quality in amounts required for the training and mobilization of each hardware unit in the Selected Reserves of the Reserve Components.*

2. *Store, identify and maintain additional equipment in the quality and quantity required by Selected Reserve hardware units in the execution of mobilization plans.*

3. Establish the same equipment priorities for Selected Reserve hardware units as for Active units having the same mobilization missions or deployment requirements.

4. Provide Selected Reserves with representative quantities of combat serviceable equipment of a type which will be issued to deploying hardware units (but which are currently not available to the Selected Reserves).

5. Program and budget for sufficient logistical support to assure that equipment will meet maintenance standards consistent with mobilization readiness objectives.

To insure compliance with the responsibilities cited, Paragraph III C tasks Military Department Secretaries to:

1. Establish the same equipment priorities for Selected Reserve hardware units as for Active Force units commensurate with their assigned mission and readiness requirements. Within priority categories Active units may be equipped first, but Reserve units of a specific readiness requirement will be equipped before Active units with a lower readiness requirement.

2. Replace non-combat (obsolete) equipment as a matter of priority; in cases where hardware units will not deploy with equipment on hand, issue representative quantities of equipment with which they will deploy to provide for familiarization training; take follow-on action to fulfill all readiness training requirements and to store and earmark any remaining equipment quantities required for mobilization.

3. Program and budget sufficient logistical support funds to assure that this equipment will meet maintenance standards that are consistent with the readiness objectives of the Reserve Forces.

4. Initiate procedures to identify and track Reserve equipment and/or procurement funds, as appropriate, through the planning, programming, budgeting, procurement and distribution process. (Inherent in this requirement is the capability of identifying Reserve Force assets separately, and projecting and budgeting for the logistical support, to include any repair or rebuild required for equipment released to Reserve Forces as newer items are issued to the Active Forces.)

It is also of interest to note that DoD 1225.6 specifies that "Proposals for withdrawals, diversion or reduction of equipment from Reserve or National Guard Forces be submitted to the Assistant Secretary of Defense (M&RA) for coordination prior to submission

to the Secretary or Deputy Secretary of Defense". Prior written approval of the Secretary of Defense or Deputy Secretary of Defense is required for:

1. The withdrawal of equipment from Reserve or National Guard Forces for reassignment to Active Forces.

2. The diversion, withdrawal or reduction of equipment from Reserve or National Guard Forces to satisfy U.S. requirements, ordered for NATO or SEATO commitments.

3. The diversion, withdrawal or reduction of equipment from Reserve or National Guard Forces to satisfy U.S. requirements of equipment ordered for grant or sales purposes under the Military Assistance Program.

DoD Directive 1225.6 also levies the respective Military Departments to issue "implementing documents".

Paragraph 4a(i), Army Chief of Staff Regulation (COSR) 701-1, March 11, 1981, directs the Deputy Chief of Staff, Operations (DCSOPS) to:

Assign the same DA master Priority List (DAMPL) priorities to Reserve Component units as are assigned to Active Army units having the same deployment requirements, except where special considerations would cause deviation.

Paragraph 5, OPNAV Instruction 4423.3B, January 8, 1973, titled "Priority Policy" states:

Units of the Combat Unit Component (Selected Reserve Units) having the same general mobilization mission or deployment requirements as active Fleet Units will be equipped with combat serviceable equipment on equal priority with active units. Combat serviceable equipment released by active forces as new items are introduced will be made available to support Selected Reserve Units.

Paragraph 6, OPNAV Instruction 4423.3B, "Action" directs action addressees to:

Implement the guidance of Section III of DoD Directive 1225.6, (which are the five explicit responsibilities delineated above).

Air Force Regulation (AFR)45-1, March 3, 1975, specifically sections 2a(3) and 2c, paragraphed respectively, mention:

Within the Department of the Air Force Total Force Policy will be applied in all aspects of planning, programming, manning, equipping and employing Active, ANG and USAFR forces. To optimize Total Force capabilities, the structure of units of the ARF will be as similar as possible to comparable active force units. An integrated approach to equipping, supporting, and exercising reserve and active forces will be taken.

To ensure the proper composition of the total Air Force, the Air Reserve Force (ARF) structure and programs are reviewed each year as an integral part of the headquarters USAF Planning-Programming-Budgeting process. These reviews occur in the Air Staff Board Structure with full participation of ARF representatives.

Paragraph 5c, AFR 45-1, states:

Air Reserve forces units of the Selected Reserve will be provided combat serviceable equipment and logistical support to satisfy approved training and mobilization readiness requirements.

Units will be authorized the mobility equipment (ME) and unit support equipment (SE) required to support the assigned wartime mission. This equipment will be provided in balance with the aircraft (or other primary mission equipment for non flying units), troop, and installation programs and will be phased to reach 100% as soon as possible.

Thus, each of the military departments have set forth by implementing directive guidelines relative to the procurement and issuance of equipment on a priority basis to the G/R. The Board therefore concludes that, in essence, the formalized regulatory matrix necessary to promulgate G/R interface in the acquisition process already exists. at both OSD and Service level. However, in most instances recognition and implementation (acquisition/allocation dynamics) clearly fail to meet G/R readiness needs.

Conversely, in those instances such as the integration of four year statutory tour ARF officers in key Air Staff Planning, Programming and Allocation Policy Positions, and where existing policy has otherwise been assiduously followed, appropriate equipment levels have resulted in enhanced unit readiness.

VII. ACQUISITION/ALLOCATION DYNAMICS

A. Analysis of G/R Procurement Budget Appropriations

The G/R procurement budget appropriations are set forth in the FYDP. A historical analysis of this data discloses substantial growth in procurement appropriations for both the Active Components and G/R forces.

Table VII.1 compares the percentages of G/R force procurement to General Purpose force procurement for each of the services. Army and Marine Corps appropriations are reported for all categories of procurement, while Air Force and Navy appropriations include only aircraft.

When considering the data for the twenty-five year period, (62-86), during the FY's 72-81, the G/R forces, except the Marine Corps, received the largest percentage of General Purpose Force procurement appropriations. The larger percentage of Army G/R percentages in the early 70's are most likely due to a post Vietnam reduction in size of the Active Army. The larger percentages of Air Force G/R appropriations in the late 70's are reflective of the purchase of A-10 and A-7 aircraft for the G/R.

Of particular significance is the planned reduction in the G/R percentage of procurement, relative to Active Forces, during the FY's 82-86. This reduction would indicate less emphasis on equipping the G/R in the 1980's.

A review of the Five Year Defense Budgets demonstrates the tendency for outyear budget estimates to be significantly larger than current appropriations. At the same time, the realized procurement appropriation is often less than original estimates.

Tables VII.2-VII.5 disclose the percentage of General Purpose Forces procurement appropriations which were indicated as procurement for G/R Forces. Tables VII.2 and VII.3, for the Army and Marine Corps include all categories of weapons/equipment. Tables VII.4 and VII.5 set forth only aircraft procurement.

The selected budget years are indicated in the left column of the Tables, while the program estimates for the budget periods are displayed in the right columns.

The G/R percentages were calculated by extracting from the FYDP, the appropriations for the program elements (1) General Purpose Forces and (2) G/R Forces.

An analysis of Table VII.2, the percentage of Army G/R procurement appropriations, reveals a number of significant observations. Generally speaking, the planned appropriations

TABLE VII-1

A COMPARISON OF THE PERCENTAGE OF G/R FORCE PROCUREMENT APPROPRIATIONS
TO GENERAL PURPOSE FORCE APPROPRIATIONS-INDIVIDUAL SERVICE

| BUDGET YEARS | Services | | | |
|--------------|--------------|--------------|-------------|-------------|
| | Army | Marine Corps | Air Force | Navv |
| FY62 | 6.5% | 27.4% | 3.7% | 0.6% |
| FY63 | 3.5% | 16.2% | 2.6% | 0.4% |
| FY64 | 8.2% | 14.2% | 3.4% | 1.0% |
| FY65 | 6.9% | 15.9% | 3.5% | 1.1% |
| FY66 | 2.9% | 24.0% | 2.5% | 1.0% |
| FY67 | 8.5% | 22.7% | 2.6% | 2.3% |
| FY68 | 9.1% | 17.5% | 2.8% | 3.1% |
| FY69 | 6.4% | 14.9% | 1.4% | 0 |
| FY70 | 3.7% | 10.4% | 2.3% | 0 |
| FY71 | <u>3.4%</u> | <u>11.6%</u> | <u>3.4%</u> | <u>0</u> |
| FY's 62-71 | 6.3% | 18.2% | 2.7% | 1.0% |
| FY72 | 16.1% | 14.1% | 2.7% | 0 |
| FY73 | 31.9% | 26.1% | 2.6% | 0 |
| FY74 | 19.7% | 4.4% | 2.0% | 0 |
| FY75 | 27.0% | 6.1% | 1.4% | 0 |
| FY76 | 22.3% | 20.0% | 2.3% | 0.7% |
| FY77 | 22.9% | 9.1% | 2.3% | 1.2% |
| FY78 | 23.3% | 7.1% | 10.2% | 1.9% |
| FY79 | 15.7% | 1.9% | 9.6% | 2.7% |
| FY80 | 12.2% | 3.1% | 11.2% | 2.1% |
| FY81 | <u>11.3%</u> | <u>2.1%</u> | <u>8.9%</u> | <u>2.0%</u> |
| FY's 72-81 | 17.7% | 7.9% | 7.1% | 1.2% |
| FY82 | 12.1% | 2.4% | 3.1% | 1.2% |
| FY83 | 9.8% | 7.6% | 2.8% | 1.3% |
| FY84 | 12.3% | 3.7% | 2.8% | 1.3% |
| FY85 | 11.2% | 4.3% | 2.5% | 0.8% |
| FY86 | <u>11.3%</u> | <u>0.9%</u> | <u>3.1%</u> | <u>0.8%</u> |
| FY's 82-86 | 11.4% | 3.7% | 2.8% | 1.0% |
| FY's 62-86 | 11.9% | 6.8% | 4.5% | 1.1% |

NOTE: 1. Percentage G/R Procurement = $\frac{\text{G/R Procurement}}{\text{General Purpose Procurement} \pm \text{G/R Procurement}}$

2. Army and Marine Corps data includes all procurement categories. Air Force and Navv data includes only Aircraft Procurement.

3. Navy data FY's 62-73 include *both* Aircraft and Missiles. FY's 74-86 include *only* Aircraft.

SOURCE: Five-Year Defense Program, Historical Summary and Program Element Detail, FY62-79, May 16, 1980 update.

Five-Year Defense Program, Fiscal Year 1982 Budget Summary and Program Element Detail, January 15, 1981 update.

for G/R procurement decrease in the outyears. Furthermore, actual procurement appropriations often decrease from the planned appropriations earmarked for the G/R.

The FY83-FY87 POM increases the percentage of G/R's portion of the Army's General Force procurement.

A review of Table VII.3, Marine Corps G/R appropriations shows a tendency for the percentage of G/R procurement appropriations to decrease FY78-FY81. There a few patterns are visible, although actual appropriations appear to almost always be less than the planned appropriations.

An examination of Table VII.4, the percentage of Naval aircraft appropriations which were for the Reserve illustrate the small percentage of Naval procurement for the Reserve. During the FY75-FY83 budget period, there were few variations in the percentage planned or actually expanded for Naval Reserve aircraft.

Table VII.5, the percentage of aircraft procurement which was for the G/R, illustrates the importance of the G/R to the overall Air Force mission. For example, actual and planned appropriations for G/R aircraft increased sharply in FY78 with the impact showing within the FY80 budget appropriations. However, there are no indications from outyear budget estimates for the percentage of G/R aircraft appropriations to reach earlier levels.

B. Caution on Interpreting FYDP Procurement Data

The procurement data contained in the FYDP's is for budget purposes. The FYDP data does not necessarily indicate actual procurement expenditures.

There is reason to believe that actual G/R procurement may be significantly less than reported in the FYDP's. For example, in FY80 the Army FYDP set forth G/R procurement appropriations to be \$695 million, while a summary of major items issued to the G/R indicated procurement, from all sources, to be \$248 million. A further analysis of the same data discloses that only 12%, (\$30.8 million), of the major items of equipment issued G/R in FY80 was new procurement.

The vast majority of equipment, 79%, (\$191 million) was delivered to the G/R from Army depot maintenance programs for rebuilding/modifying equipment. Another 10%, (\$26 million) of the major equipment issued to the G/R came from Active Army Units. The remaining 1%, (\$79,000) of equipment was delivered from the Department of the Army approved Reserve Component dedicated maintenance programs.

TABLE VII 2

**A COMPARISON OF THE PERCENTAGE OF PROCUREMENT APPROPRIATIONS OF GUARD/RESERVE FORCES TO GENERAL PURPOSE
FORCES FOR SELECTED BUDGET YEARS — FY75 FY83, ARMY**

| BUDGET YEAR | Years Included in Five Year Defense Program | | | | | | | | | | | | |
|---------------|---|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|-------|-------|
| | FY73 | FY74 | FY75 | FY76 | FY77 | FY78 | FY79 | FY80 | FY81 | FY82 | FY83 | FY84 | FY85 |
| FY75 | 31.8% | 18.9% | <u>20.8%</u> | 29.5% | 34.0% | 26.8% | 14.0% | | | | | | |
| FY76 | | 17.4% | 23.2% | <u>20.3%</u> | 15.8% | 13.8% | 12.0% | 11.0% | | | | | |
| FY77 | | | 24.0% | 18.7% | <u>25.4%</u> | 24.6% | 24.0% | 24.6% | 19.2% | | | | |
| FY78 | | | | 22.9% | 24.5% | <u>24.4%</u> | 16.4% | 20.8% | 16.5% | 15.8% | | | |
| FY79 | | | | | 23.7% | 23.2% | <u>16.1%</u> | 15.6% | 13.7% | 14.1% | 14.4% | | |
| FY80 | | | | | | 23.4% | 15.9% | <u>14.4%</u> | 11.0% | 13.1% | 12.9% | 14.0% | |
| FY81 | | | | | | | 15.8% | 12.6% | <u>11.2%</u> | 10.3% | 10.0% | 12.1% | 12.9% |
| FY82 (Carter) | | | | | | | | 12.2% | 11.2% | 12.1% | 9.9% | 12.3% | 13.2% |
| FY82 (Reagan) | | | | | | | | 12.2% | <u>13.4%</u> | <u>13.4%</u> | 9.9% | 12.3% | 13.2% |
| FY83 | | | | | | | | | 13.4% | 16.0% | 15.2% | 16.0% | 17.2% |
| | | | | | | | | | | | | | 16.5% |

NOTE: Percentage G/R Procurement = $\frac{\text{G/R Procurement}}{\text{General Purpose Procurement \& G/R Procurement}}$

SOURCE: *Five Year Defense Program*, FY75 FY82 (Carter), January Editions.
Five Year Defense Program, FY82 (Reagan), March Edition.
Five Year Defense Program, *Program Objective Memorandum*, FY83 FY87, June 1981.

TABLE VII-3

A COMPARISON OF THE PERCENTAGE OF PROCUREMENT APPROPRIATIONS OF GUARD/RESERVE FORCES TO GENERAL PURPOSE
FORCES FOR SELECTED BUDGET YEARS - FY75-FY83, MARINE CORPS

| BUDGET YEAR | Years Included in Five Year Defense Program | | | | | | | | | | | | |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|
| | FY73 | FY74 | FY75 | FY76 | FY77 | FY78 | FY79 | FY80 | FY81 | FY82 | FY83 | FY84 | FY85 |
| FY75 | 13.1% | 15.9% | 20.5% | 17.4% | 13.9% | 11.9% | 10.9% | | | | | | |
| FY76 | | 9.9% | 10.2% | 32.8% | 20.9% | 22.1% | 14.3% | 15.0% | | | | | |
| FY77 | | | 6.0% | 24.1% | 10.4% | 10.9% | 8.1% | 5.4% | 7.1% | | | | |
| FY78 | | | | 21.9% | 9.7% | 7.7% | 11.1% | 8.3% | 7.8% | 9.4% | | | |
| FY79 | | | | | 10.0% | 6.8% | 20% | 7.1% | 5.6% | 5.9% | 6.2% | | |
| FY80 | | | | | | 7.2% | 1.9% | 4.7% | 3.3% | 4.6% | 7.3% | 0.6% | |
| FY81 | | | | | | | 1.9% | 3.4% | 2.2% | 3.6% | 3.1% | 7.3% | 2.3% |
| FY82 (Carter) | | | | | | | | 3.1% | 2.1% | 2.4% | 7.6% | 3.7% | 4.4% |
| FY82 (Reagan) | | | | | | | | 3.1% | 2.8% | 4.7% | 7.6% | 3.7% | 4.4% |
| FY83 | | | | | | | | | 2.8% | 4.6% | 4.2% | 2.8% | 3.3% |
| | | | | | | | | | | | | | 0.9% |
| | | | | | | | | | | | | | 0.9% |
| | | | | | | | | | | | | | 18% |

NOTE: Percentage G/R Procurement = $\frac{\text{G/R Procurement}}{\text{General Purpose Procurement \& G/R Procurement}}$

SOURCE: Five Year Defense Program, FY75 FY82 (Carter), January Editions.

Five Year Defense Program, FY82 (Reagan), March Edition.

Five Year Defense Program, Program Objective Memorandum, FY83 FY87, June 1981.

TABLE VII-4

A COMPARISON OF THE PERCENTAGE OF PROCUREMENT APPROPRIATIONS OF GUARD/RESERVE FORCES TO GENERAL PURPOSE
FORCES FOR SELECTED BUDGET YEARS - FY75-FY83, NAVY

| BUDGET YEAR | Years Included in Five Year Defense Program | | | | | | | | | | | | |
|---------------|---|------|----------|-------------|-------------|-------------|-------------|-------------|-------------|------|------|------|------|
| | FY73 | FY74 | FY75 | FY76 | FY77 | FY78 | FY79 | FY80 | FY81 | FY82 | FY83 | FY84 | FY85 |
| FY75 | .0 | .0 | <u>0</u> | .0 | .0 | .0 | .0 | | | | | | |
| FY76 | | .0 | .0 | <u>0.6%</u> | 1.0% | 1.3% | 1.4% | .0 | | | | | |
| FY77 | | | .0 | 0.6% | <u>1.0%</u> | 1.1% | 1.4% | 0.5% | 0.9% | | | | |
| FY78 | | | | 0.6% | 1.1% | <u>1.4%</u> | 1.9% | 1.3% | 1.3% | 0.9% | | | |
| FY79 | | | | | 1.2% | 1.5% | <u>1.1%</u> | 0.7% | 0.4% | 0.4% | | | |
| FY80 | | | | | | 1.9% | 2.6% | <u>2.2%</u> | 1.5% | 1.1% | 1.3% | 1.3% | |
| FY81 | | | | | | | 2.6% | 2.6% | <u>1.6%</u> | 1.4% | 1.5% | 1.2% | 1.4% |
| FY82 (Carter) | | | | | | | | 2.1% | 2.0% | 1.2% | 1.3% | 1.3% | 0.8% |
| FY82 (Reagan) | | | | | | | | 2.1% | 2.0% | 0.9% | 1.3% | 1.3% | 0.8% |
| FY83 | | | | | | | | | 2.0% | 0.9% | 1.1% | 1.4% | 1.0% |

NOTE: Percentage G/R Procurement = $\frac{\text{G/R Procurement}}{\text{General Purpose Procurement \& G/R Procurement}}$ SOURCE: Five Year Defense Program, FY75-FY82 (Carter), January Editions.
Five Year Defense Program, FY82 (Reagan), March Edition.

Five Year Defense Program, Program Objective Memorandum, FY83-FY87, June 1981.

TABLE VII 5

A COMPARISON OF THE PERCENTAGE OF PROCUREMENT APPROPRIATIONS OF GUARD/RESERVE FORCES TO GENERAL PURPOSE
FORCES FOR SELECTED BUDGET YEARS - FY75-FY83, AIR FORCE

| BUDGET YEAR | Years Included in Five Year Defense Program | | | | | | | | | | | | |
|---------------|---|------|------|------|------|-------|-------|-------|------|------|------|------|------|
| | FY73 | FY74 | FY75 | FY76 | FY77 | FY78 | FY79 | FY80 | FY81 | FY82 | FY83 | FY84 | FY85 |
| FY75 | 2.7% | 2.3% | 1.8% | 3.0% | 3.0% | 14.4% | 11.2% | | | | | | |
| FY76 | | 2.0% | 1.5% | 2.0% | 1.6% | 7.2% | 6.2% | 2.7% | | | | | |
| FY77 | | | 1.4% | 2.3% | 1.6% | 5.7% | 4.9% | 1.7% | 2.8% | | | | |
| FY78 | | | | 2.3% | 1.7% | 5.7% | 4.8% | 1.5% | 2.0% | 1.9% | | | |
| FY79 | | | | | 1.7% | 7.0% | 5.0% | 1.4% | 1.7% | 1.9% | 1.5% | | |
| FY80 | | | | | | 11.0% | 7.9% | 6.4% | 3.0% | 1.8% | 1.8% | 2.9% | |
| FY81 | | | | | | | 9.6% | 11.2% | 7.0% | 4.5% | 1.7% | 1.9% | 2.1% |
| FY82 (Carter) | | | | | | | | 11.2% | 8.9% | 3.1% | 2.8% | 2.8% | 2.5% |
| FY82 (Reagan) | | | | | | | | 11.2% | 8.3% | 2.2% | 2.8% | 2.8% | 2.5% |
| FY83 | | | | | | | | | 8.3% | 2.2% | 3.5% | 2.9% | 2.6% |
| | | | | | | | | | | | | | 2.2% |

NOTE: Percentage G/R Procurement = $\frac{\text{G/R Procurement}}{\text{General Purpose Procurement \& G/R Procurement}}$

SOURCE: Five Year Defense Program, FY75-FY82 (Carter), January Editions.
Five Year Defense Program, FY82 (Reagan), March Edition.
Five Year Defense Program, Program Objective Memorandum, FY83-FY87, June 1981.

VIII. GUARD/RESERVE CURRENT EQUIPMENT STATUS

This section discusses the current equipment status of the G/R. Table VIII-1 depicts the first and second most critical factors limiting overall readiness as reported in FY81 by major Reserve Components. Equipment was the most critical limiting factor for eight out of fifteen major categories of Reserve Units for which aggregated data was available.

TABLE VIII-1

CRITICAL FACTORS LIMITING OVERALL READINESS IN EACH OF THE FOLLOWING MAJOR RESERVE COMPONENTS AS REPORTED IN FY81*

| Component | Readiness Elements | | | |
|----------------------|--------------------|-------------|-----------|----------|
| | Strength | Skill Match | Equipment | Training |
| Army Guard | 2 | - | 1 | - |
| Army Reserve | | | | |
| Combat | 2 | - | 1 | - |
| Support | - | 2 | 1 | - |
| Naval Reserve | | | | |
| Surface | 2 | - | 1 | - |
| Air | - | - | 1 | 2 |
| Combat/Support | - | - | 1 | 2 |
| MinEquip + | 2 | - | - | 1 |
| Marine Corps Reserve | | | | |
| DIV | 1 | 2 | - | - |
| Air | - | - | 1 | - |
| FSSG | 1 | 2 | - | - |
| Air Force Guard | | | | |
| Equip | - | 1 | - | 2 |
| MinEquip - | - | 1 | - | 2 |
| Air Force Reserve | | | | |
| Equip | - | 1 | - | 2 |
| MinEquip - : | - | - | - | - |
| Coast Guard Reserve | - | - | 1 | 2 |

* 1-Represents most critical limiting factor; 2-represents second most critical limiting factor.

- Units with little or no assigned equipment

: Data currently incomplete

Weighing each of the above readiness elements produces the following order of seriousness in terms of most limiting to least limiting: equipment, skill match, training, strength. If one argues that training is very much dependent on having equipment and that skill matches are dependent on equipment and training, then the order is reasonable.

Another way of appraising the equipment status of the G/R is to consider the percentages of equipment assets on hand compared to wartime requirements by dollar value. This is shown in an approximated fashion in Table VIII-2. There are a number of problems in gathering the data and using it in a comparable manner. Different Services collect it at different times and aggregate it in somewhat different ways based on a variety of costing methodologies. The accumulated dollar values used in preparing Table VIII-2 were perceived as including possibly only 90% to 95% of all requirements and on-hand inventories. On the other hand, the relationships expressed by the percentages are accurate representations and are not

TABLE VIII-2

PERCENTAGES OF EQUIPMENT ASSETS ON-HAND TO
WARTIME REQUIREMENTS FOR THE G/R (DOLLAR VALUE)

| | Total % | Support Items Only % |
|-----------------------|---------|----------------------|
| Army | | |
| Guard | 69 | — |
| Reserve | 25 | — |
| Naval Reserve* | 88 | 49 |
| Marine Corps Reserve | 54** | 20 |
| Air Force | | |
| Guard | 86 | 72 |
| Reserve | 92 | 76 |
| Coast Guard Reserve + | — | — |
| Overall | 71 | 61 |

* Does not include surface ships

+ No appreciable equipment assigned to USCGR

** Based on Nov 1980 Exercise "Proud Spirit" Supportability Test

likely to change more than a percentage point or two if all the data could be obtained at the same time in the same fashion.

Table VIII-2 indicates that there is an overall equipment shortfall of about 30%. The data suggests that aircraft associated units tend to have a higher percentage of their wartime requirements. This was true for the ANG, AFRES, as well as the Naval and MC air components where the percentages ranged from 86% to nearly 97%. This was not the case with the Ground units where the range is 54% to 69%. Some of the equipment shortfalls are planned to be made-up from equipment holding centers, POMCUS and prepositioned sites. There are numerous questions concerning the dedication of stored equipment to the G/R. The issue really concerns the Total Force and the Total Force inventory of equipment relative to requirements. There is a feeling that there are multiple claimants for these resources including the G/R, Active Forces and, on occasion, foreign military forces.

Table VIII-2 also shows the percentage of support items on-hand to required by dollar value. The shortfalls tend to be more pronounced for support items throughout all of the Services, both for the G/R and Active Forces. The extent is less dramatic for the Active Forces, but still serious. With limited dollars there is a tendency to establish priorities and direct spending first to weapons platforms, next to support systems, and finally to spares. Examples of this approach are numerous and varied.

A review of the Army Guard's assets shows it has on-hand 90% of its tank requirements, 65% of its carriers, 51% of its trucks, and 35% of its ADP equipment needs. The Naval Air Reserve units have 107% by dollar value of their required aircraft, 67% of their support equipment, and 35% of their spare parts. Within each of the Naval Air categories, there are further priorities which are developed on the immediacy of need. For example, there is a shortage of ammunition handling equipment both in the Naval Air Reserve and Active Navy because the peacetime use of this equipment is low. A policy not to fund pipeline spares is another example of keeping costs down but with much the same result for the aircraft. The Air Force Reserve is in better shape with 93% of its required aircraft by dollar value, 85% of its vehicles, 71% of its mobility equipment and, 76% of its support items.

The above percentages relate to actual equipment supplied the G/R and reflect in some cases inappropriate substitute items of equipment which are not combat deployable. Inappropriate substitute items include equipment such as jeep mounted TOWs instead of carrier mounted TOWs and early model, helicopters, UH-1B/C/M in lieu of later model attack helicopters, AH-64 or AH-1S. Thus, the percentage of equipment assets on-hand tends to be inflated.

Support deficiencies are perceived as a problem for most Reserve units in terms of peacetime training and a serious potential problem with respect to supportability in wartime. There are several views about the situation. One is that peacetime reliance on common assets between the Active and G/R components, while leading to present operating efficiencies, has also reduced the impetus to develop and implement programs that will lead to adequate equipment levels for the G/R. Another view, prevalent in the Navy and Air Force, is that in a wartime situation the combat weapons systems will attrite to levels in balance with the available support trains. In addition, the various Service air arms plan to augment their spare parts inventories from aircraft that are damaged beyond immediate repair. The belief is that the inputs of Reserve assets and new planes and pilots against wartime losses will not be sufficient to overload the available support systems during the first several months.

Interviews with program managers and a review of available data indicate that both the Active Forces and G/R on-hand equipment inventories are in the aggregate below wartime requirements. As previously discussed, the shortfalls are most pronounced for support items and spare parts. The quantitative differences tend to be

more extreme in the G/R with considerable variations between Reserve Components. A comparison of G/R Forces with their Active counterparts revealed numerous qualitative differences also, but again there were fluctuations among Services.

One way of constraining the equipment quantities is through reduced authorizations. Table VIII-3 shows the relationships between wartime equipment requirements and authorized levels of equipment on the basis of dollar value. With the exception of the Army and Marine Corps Reserve the percentages of authorizations to wartime requirements are typically 90+%. Some of the Army Guard and Reserve as well as Marine Corps Reserve's other-than-authorized assets are held by separate commands with an understanding that they will be made available to meet wartime requirements if needed.

TABLE VIII-3

PERCENTAGE OF AUTHORIZED EQUIPMENT TO WARTIME EQUIPMENT REQUIREMENTS
BASED ON TOTAL VALUE OF INVENTORIES

| | % |
|----------------------|-----------|
| Army | |
| Guard | 93 |
| Reserve | 40 |
| Naval Reserve | * |
| Marine Corps Reserve | 95 plus** |
| Air Force | |
| Guard | 90 plus |
| Reserve | 95 plus |
| Coast Guard Reserve | + |

* Multiple managers with no central coordination of data make it difficult to obtain a complete picture of authorizations to requirements.

+ No appreciable equipment.

** Based on Nov 1980 Exercise "Proud Spirit" Supportability Test.

Rationale for the differences in the Army and Marine Corps Reserve percentages is based on the provision of sufficient equipment to meet training requirements and storage/maintenance considerations at local training centers.

One indicator of equipment quality is the aggregate age by class that exists within the various G/R and Active Components. Tables VIII-4, a through c, show the average age of equipment by major categories. A basic assumption is that a marked difference in equipment ages would signal a significant difference in types of equipment. This turned out to be true for all of the services, in some cases. These are general categorizations with some exceptions. They are also snapshot accountings subject to change over time.

For example, the Air Force is pursuing a program to provide A-10's to the Guard and Reserve which should appreciably narrow differences in attack aircraft. The replacement of the Frams DD's by Knox Class Frigates will be a marked improvement in the Naval Reserve's surface combatant assets. On the other hand, the Marine Corps Reserve is not scheduled to receive the new 155 mm Howitzers until FY 1986 and the Army G/R are not likely to receive the M-1 tanks until the 1990's. Thus, in these and other areas the equipment differences are likely to continue.

TABLE VIII-4

COMPARISON OF AVERAGE AGES OF EQUIPMENT IN YEARS
BY MAJOR CATEGORIES FOR G/R AND ACTIVE FORCES

a. Ground Forces

| | Army | | | Marine Corps | |
|-------------|-------|---------|--------|--------------|--------|
| | Guard | Reserve | Active | Reserve | Active |
| Tanks | 14.0 | | | 3.7 | 3.7 |
| Carriers | 11.0 | | | 8.4 | 8.0 |
| Artillery | 12.0 | | | 19.2 | x |
| Trucks | 16.5 | | | 12.0 | 12.0 |
| Helicopters | | | | | |
| Attack | 14.9 | 17.8 | 8.7 | 8.2 | 9.4 |
| Utility | 12.9 | 13.0 | 10.7 | 14.3 | 5.6 |
| Observation | 9.0 | 9.2 | 10.0 | — | — |
| Cargo | 14.1 | 15.1 | 11.8 | — | — |

b. Air Forces

| | Navy | | Marine Corps | | Air Force | | |
|---------------------|---------|--------|--------------|--------|-----------|---------|--------|
| | Reserve | Active | Reserve | Active | Guard | Reserve | Active |
| Attack | 12.4 | 9.8 | 15.0 | 7.9 | 6.7 | 7.2 | 3.2 |
| Fighter/Interceptor | 16.1 | 10.2 | 14.0 | 13.8 | 16.7 | 17.2 | 9.0 |
| Cargo | 21.8 | 20.0 | 13.0 | 16.4 | 19.7 | 19.9 | 13.6 |
| Tankers | 20.4 | 15.6 | 18.0 | 14.5 | 20.3 | 21.5 | 19.4 |
| ASW Patrol | 15.9 | 11.6 | — | — | — | — | — |

c. Ship Forces

| | Navy | |
|------------|---------|--------|
| | Reserve | Active |
| DD | 34.0 | 9.3 |
| MSO | 26.0 | 26.0 |
| AMPHIBIOUS | 11.5 | 13.4 |
| SUPPORT | 36.3 | 26.0 |

NOTE: — Not Appropriate
x Not Available

There are other areas that also tend to be neglected within the Reserve components that are generally known, but do not readily surface when looking at gross data. Examples would be differences in communication and data process equipment existing between G/R and interfacing Active Force units. The same is also true of new equipment initiatives. For example, items required for chemical and nuclear defensive measures are likely to be programmed for the Actives and not for the G/R, at least in the near term.

As previously mentioned, there is a tendency to underestimate spare part requirements. This tends to be true for overall operating and maintenance budgets. Actual costs tend to be considerably higher than outyear projections. Several reasons were given for this. There is a tendency to be overly optimistic regarding O&M costs as a means of gaining equipment acceptance and acquiring larger numbers of a particular item. Another current problem is the difficulty in adequately predicting the effects of inflation on O&M, particularly from the standpoint of fuel cost. It also appears that rising costs are considered more realistically in the FYDP's beginning in FY79.

A. Personnel Authorization

Following the end of the Vietnam conflict and the implementation of the All Volunteer Force (AVF) in 1973, both the G/R and Active Forces experienced an overall reduction in authorized numbers reaching a low in FY79. The exception was the ANG and AFRES which experienced a moderate growth during this period of 4.5% and 3.9%, respectively, while the Active Air Force declined by 19%. In general, the other Reserve counterparts decreased at a faster rate than Active Force counterparts during the period FY73-79.

Moderate growth has been planned and achieved in the G/R and Active Forces since 1979 as shown in Table VIII-5. The overall result was that the G/R, with the exception of the Naval Reserves, has increased at a faster rate than the Active Forces. This is indicative of a general increased reliance on the G/R and for the most part, the perceived ability for them to meet the increased responsibilities. From this, it would seem reasonable that equipment considerations for the G/R should be balanced against the manpower and skills available in line with G/R mission growth and development.

TABLE VIII-5

STRENGTH AUTHORIZATIONS BY TOTAL FORCE COMPONENTS

| | FY79 | FY80 | FY81 | FY82 | FY79-82 | |
|-------|------|------|------|------|------------|---------|
| | | | | | Difference | Percent |
| ARMY | 758 | 776 | 775 | 786 | + 28 | - 3.7 |
| NAVY | 522 | 527 | 540 | 555 | + 33 | - 6.3 |
| MC | 185 | 188 | 191 | 192 | + 7 | - 3.7 |
| AF | 559 | 558 | 569 | 587 | + 28 | - 5.0 |
| Total | 2024 | 2049 | 2075 | 2120 | + 96 | - 4.7% |
| ARNG | 362 | 356 | 386 | 398 | + 36 | - 9.9 |
| USAR | 196 | 197 | 220 | 242 | + 46 | - 25.0 |
| USNR | 87 | 87 | 87 | 88 | + 1 | - 1.1 |
| USMCR | 33 | 34 | 37 | 38 | + 5 | - 15.2 |
| ANG | 92 | 92 | 98 | 99 | + 7 | - 7.6 |
| AFRES | 53 | 57 | 61 | 64 | + 11 | - 20.8 |
| Total | 823 | 823 | 889 | 929 | - 106 | - 12.9 |

B. Current Equipment Shortages

In February, 1980, the Deputy Assistant Secretary of Defense (Reserve Affairs) requested from each service a list of shortages of major items of equipment which would affect the G/R fighting capability. The total cost of the items identified was slightly more than \$4 billion with approximately 80% of the value of the equipment shortfall attributed to the Army.

It is emphasized that each service was to report major equipment shortages from wartime requirements not from peacetime levels of authorization. Generally speaking, the Active Component report G/R shortages from peacetime levels of authorization while G/R elements prefer to compare shortages to wartime requirements. The difference between peacetime levels of authorization and wartime requirements varies greatly among and within the individual services as set forth in Table VIII-3.

Because of the specific equipment shortages Army G/R units may be equipped with substitute equipment which is considered adequate for peacetime training purposes. However, the substitute equipment is not deployable. An example is TOW mounted vehicles.

In August 1981, an analysis of Army G/R shortages which were listed in February 1980, disclose little change in the quantities short. With some of the items reviewed, there were plans to reduce some of the shortages from authorized levels by FY87. With few exceptions, there were no plans to significantly reduce the shortfall between peacetime levels of authorization and wartime requirements. Thus, most evidence indicates that the serious shortages which presently exist with Army G/R equipment from wartime requirements will be prevalent throughout the 1980-1990's.

Many of the equipment shortages of the Army G/R are in basic, relatively unsophisticated types of equipment necessary to support ground combat. These items include tanks, trucks, track vehicles, artillery pieces, antitank weapons and helicopters.

At this time, the Army is being modernized and these basic types of Weapons/Equipment are being improved with the procurement of new families of equipment. For example, the personnel carrier M113 is being replaced by the Infantry Fighting Vehicle and the M60A3 tank by the M1 Tank. The cost difference between new family and current family equipment is generally large. However, it is not axiomatic that the new equipment is always comparably greater in capability than improved versions of existing equipment. In addition, there are significant shortages of sophisticated and complex weapons/equipment throughout all G/R elements. Some of the examples include: aircraft, communication/electronics and data processing equipment.

Currently, the demand for equipment in the Total Force is so great and the cost of the new families of equipment is so large that there will not be enough new equipment to even meet the needs of the Active Forces, let alone the G/R forces. Therefore, the normal primary source of most of the G/R equipment, the waterfall of displaced older equipment from the Active Forces, will not provide significant relief to solve the G/R equipment shortfall.

Other factors which significantly reduce the waterfall of equipment or at times the procurement of new equipment for the G/R are foreign military sales and POMCUS stocking. Frequently, it would appear that the military equipment needs of foreign countries are placed before the equipment needs of the total U.S. forces, especially the needs of the G/R.

One partial solution to equipping the Active and the Reserve would be to make major product improvements on existing equipment to enhance the equipment capabilities to acceptable levels. Another solution would be to make interim buys of improved models of the existing families of equipment. A major deterrent to utilizing these alternative procurement strategies is the reluctance of the Services/OSD to purchase or improve weapons/equipment for which replacement items (a new family) are being procured. In the past, equipment shortages and other shortfalls have been solved by placing them in the outyears in the FYDP and therefore, often they are never funded.

During this period of overwhelming G/R equipment shortages, serious considerations must be given to all procurement alternatives to ameliorate the equipment shortfall for the Total Force.

IX. G/R EQUIPMENT 1990's

The Reserve Forces have historically been equipped with weapons systems that were either no longer needed by the Active Forces or with systems that were in excess of the Active Force requirements.

Currently, however, pursuant to the Total Force Policy, some Services are attempting to equip the G/R with equipment currently in use by Active Forces. Examples of this are the unitary equipment buys by the Air Force (e.g.: A-10) and the 4th Marine Division. The most obvious advantage of expanding this approach to national defense is the reduction in unit cost of major items realized by increasing the original purchase to include sufficient numbers to equip the G/R. If the G/R are to continue as a viable part of the Total Force, ready for early deployment in both combat and support roles, then the concept of unitary equipment buys including sufficient spares, mirror image organization and identical equipage must be expanded and accelerated.

The equipment status of the G/R in the 1990's will be determined in the next several years. Although it is impossible to estimate precisely the needs and the availability of Weapons/Equipment for the G/R in the 1990's, some general observations can be made.

1. A significant increase is forecast in the size of the Active Forces during the 1980-1990's. G/R strength during the same period is predicted to increase. Thus, it can be expected that future equipment needs will be greater than current needs.
2. There is no foreseeable significant increase in the amount of equipment which will be available for the G/R during the 1980-1990's. Because of the increasing cost of new weapon/equipment, the quantities acquired will not be adequate to equip the Active Forces. Therefore, the amount of equipment available to equip the G/R through the waterfall effect will be minimal.
3. There is growing evidence that there will be an expansion of foreign military sales during the 1980-1990's, thus dictating further reduction of the amount of equipment available to U.S. forces.
4. Because of limited industrial capacity, increasing production demands, and an increasing shortage of critical raw materials, the lead times required between order and delivery time will increase in the 1980-1990's.

5. Rather than remedying equipment shortfalls with interim buys of existing types of equipment, the services will choose to wait on equipment purchases for the outyears to acquire new generation equipment.

6. Despite the increased efforts to revitalize and expand the United States military industrial base, the expected demands for military weapons/equipment will be greater than the production capacity, unless industry is mobilized on an expanded basis.

7. Therefore, unless the controllable factors are changed, the serious weapons/equipment shortfall will preclude the achievement of readiness objectives during the 1990's.

X. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

A. Findings

1. Equipment shortages exist in selected Active and in some Guard/Reserve units from the required amount of equipment.
2. Equipment shortages result in the diminution of training effectiveness and unit readiness.
3. In both Active and Reserve units, readiness is degraded by insufficient spare parts and inadequate support.
4. Substantial quantitative and qualitative equipment differences exist between some Active and Guard/Reserve equipment authorization documents.
5. The average age of the equipment is increasing throughout the Total Force.
6. Future costs for personnel, O&M, spares and inflation have been underestimated.
7. In specific instances in the Army and Navy, equipment differences affect interoperability, supportability and sustainability between Active and Guard/Reserve units within the Total Force.
8. Personnel authorization and assigned strength are increasing at a faster rate in the Guard/Reserve than in the Active Reserve Force.
9. Congress has in a few instances mandated equipment assignment to the Guard/Reserve.
10. Percentages of new equipment procurement for Guard/Reserve vary substantially among the Services.
11. Analysis of the historical FYDP's indicates substantial shortfalls between projected and actual expenditures.
12. Planning expectations that equipment shortages in the Total Force will be less severe in the "outyears" of the FYDP, lead to a false sense of security.
13. Weapons/equipment costs have increased exponentially in recent years.
14. Increasing acquisition costs have reduced the amount of weapons/equipment purchased.

15. Many new major systems involve leading edge technology and an increasing number of component systems.
16. The duration of the acquisition cycle has lengthened.
17. Many acquisition contracts are not based on competitive bids.
18. Foreign Military Sales (FMS) and Prepositioning of Materiel Configured to Unit Sets (POMCUS) exacerbate the equipment availability to the Total Force, particularly the Guard/Reserve.
19. Interim purchase opportunities are not utilized to maximum advantage under current policies.
20. Generally, Guard/Reserve input into the acquisition cycle and the allocation process is minimal with relatively little new equipment purchased specifically for the Guard/Reserve. The Air Force is an exception to this finding (in the acquisition process).

B. Conclusions

1. Sufficient equipment to properly equip the Total Force does not exist.
2. With the exception of Air Reserve Forces, equipment shortages are greater in the Guard/Reserve than in the Active Forces.
3. As delineated in Table VIII-1, equipment shortages are currently the major cause of Guard/Reserve unit readiness deficiencies.
4. In some Services, Guard/Reserve authorized amount of equipment has been modified to reflect the type and quantity of equipment available, rather than realistic wartime mission requirements.
5. Congressionally mandated equipment specifically procured for the Guard/Reserve indicates heightened Congressional focus on Guard/Reserve readiness.
6. Increased equipment costs have resulted from inflation, complexity, leading edge technology, eroding industrial base, material scarcity, and acquisition policies.
7. High weapons/equipment costs and longer acquisition and life cycles will result in fewer systems available to the Total Force.

8. Relatively little new equipment is purchased specifically for the Guard/Reserve. Conversely, the assignment of forty new production aircraft (12 A-7K, 20 A-10A and 8 C-130H) directly to the Air Reserve Forces in FY81 enhances ARF combat capability.
9. Equipment shortages and obsolescence in the Guard/Reserve will increase significantly unless corrective action is taken.

C. Recommendations

The equipment available to the Guard/Reserve component of the Total Force must be increased in numbers, capability, and compatibility with the Active Force if Guard/Reserve readiness is to be maintained or increased and if the Guard/Reserve is to be expected to fulfill its assigned mission as a full partner in the Total Force. Sufficient equipment for the Guard/Reserve to meet its readiness objectives can be acquired only through basic mechanisms:

1. Increase total equipment available to the Total Force.
2. Implement the policy of equipment allocation as specified in DoDD 1225.6.
3. A combination of both the above in which the total equipment available is increased and the allocation of new equipment to the G/R is more clearly established.

The study group believes that the third alternative is the best solution and offers the following recommendations:

Acquisition Policy. Improve the acquisition process and lower unit cost, thereby allowing for increased procurement.

a. Multi-year Procurement Contracts as proposed in current HR 3519 are projected to save substantial funds.

b. More realistic forecasting of inflation effects, O&M, spares and personal costs, will reduce uncertainty and provide for better management of available funds.

c. Competitive practices within the acquisition cycle must be emphasized where possible.

d. Service Life Extension Programs (SLEP) and Product Improvement Program (PIP) must be encouraged.

e. Interim purchases, when unit readiness is adversely affected because of equipment limitations, should be utilized to minimize the vulnerability window while awaiting new types of systems.

f. Alternative designs and mature technology must be given stronger emphasis.

g. Purchases of sufficient spares, both initial and replenishment, will not only reduce the cost over the life of the system but will directly increase the readiness of the system by decreasing down time.

h. Guard/Reserve capability and requirements must be integrated where appropriate into the initial "Mission Analysis" and "Evaluation of Reconciliation of Needs" phases of the DoD Major Systems Acquisition Cycle.

i. Unitary buys should include procurement of sufficient numbers of compatible systems to properly equip the Total Force both Active and G/R.

Allocation Policies. Established policies must be followed within DoD and each Service to insure that the Guard/Reserve has the required weapons/equipment to meet the assigned missions.

a. T/E differences between wartime Guard/Reserve and Active Forces must be reconciled.

b. Better monitoring of equipment deficiencies through logistics accounting systems and supportability tests reporting wartime requirements, authorized T/E's, quantities on-hand, POMCUS, MPS, mount-outs, PWR, and substitute items should be initiated.

c. Proportional allocation, by mission priority, of equipment procured through unitary buys should be followed when purchased equipment varies from the planned quantity.

Above all, increased Guard/Reserve representation must exist in the acquisition and allocation process at the highest decision making levels, both in OSD and in the individual Services.

LIST OF TABLES AND FIGURES

| | Page |
|------------------------|------|
| Table II-1 | 2 |
| Table VII-1. | 27 |
| Table VII-2. | 29 |
| Table VII-3. | 30 |
| Table VII-4. | 31 |
| Table VII-5. | 32 |
| Table VIII-1 | 33 |
| Table VIII-2 | 34 |
| Table VIII-3 | 36 |
| Table VIII-4 | 37 |
| Table VIII-5 | 39 |
| Figure III-1 | 6 |
| Figure III-2 | 8 |
| Figure IV-1 | 13 |
| Figure VI-1 | 20 |

GLOSSARY OF ACRONYMS

| | |
|-------------|---|
| ADP | Automatic Data Processing |
| AFR | Air Force Regulation |
| AFRES | Air Force Reserve |
| ANG | Air National Guard |
| AR | Army Reserve |
| ARF | Air Reserve Forces |
| ARNG | Army National Guard |
| AVF | All Volunteer Force |
| CAIG | Cost Analysis Improvement Group |
| CD | Contract Definition |
| CG | Consolidated Guidance |
| COSR | Chief of Staff Regulation (Army) |
| CPIF | Cost Plus Incentive Fee |
| DAE | Defense Acquisition Executive |
| DCP | Defense Coordinating Paper |
| DoD | Department of Defense |
| DoDD | Department of Defense Directive |
| DRB | Defense Resources Board |
| DSARC | Defense System Acquisition Review Council |
| FMS | Foreign Military Sales |
| FPI | Fixed Price Incentive |
| FY | Fiscal Year |
| FYDP | Five Year Defense Program |
| GNP | Gross National Product |
| G/R | Guard/Reserve |
| IPS | Integrated Program Summary |
| JCS | Joint Chiefs of Staff |
| JFM | Joint Forces Memorandum |
| JPAM | Joint Program Assessment Memorandum |
| JSOP | Joint Strategic Objectives Plan |
| JSPD | Joint Strategic Planning Document |
| LAV | Light Armored Vehicle |
| LVT | Landing Vehicle, Tracked |
| MAF | Marine Amphibious Force |
| ME | Mobility Equipment |
| MENS | Mission Element Need Statement |
| NTPS | Near Term Prepositioned Shipping |
| OASD(MRA&L) | Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) |
| OASD(PA&E) | Office of the Assistant Secretary of Defense (Program Analysis and Evaluation) |
| OJCS | Office of the Joint Chiefs of Staff |
| OMB | Office of Management and Budget |
| OSD | Office of the Secretary of Defense |
| OUSDR&D | Office of the Under Secretary of Defense for Research and Development |
| PBD | Program/Budget Decision |

| | |
|--------|---|
| PDM | Program Decision Memorandum |
| PIP | Product Improvement Program |
| POM | Program Objective Memorandum |
| POMCUS | Prepositioning of Materiel Configured to Unit Sets |
| PPBS | Planning, Programming, Budgeting System |
| RFPB | Reserve Forces Policy Board |
| SARC | System Acquisition Review Council |
| SDDM | Secretary of Defense, Decision Memorandum |
| SE | Support Equipment |
| SLEP | Service Life Extension Program |
| SMCR | Selected Marine Corps Reserve |
| TEMP | Test and Evaluation Master Plan |
| ZBB | Zero Based Budgeting |